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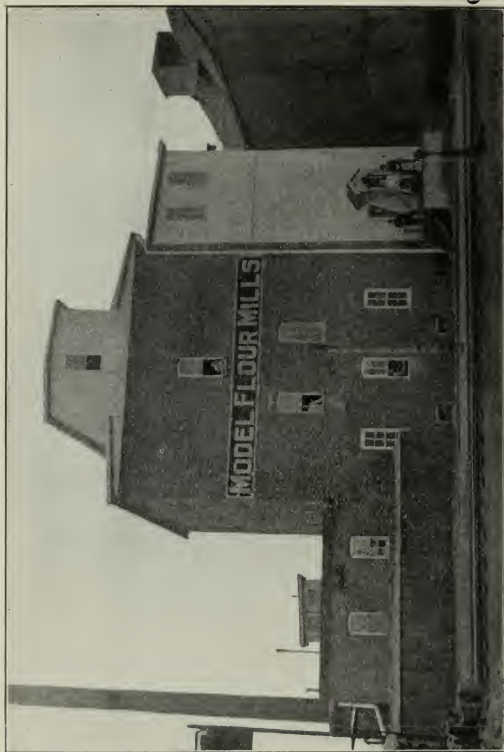
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FLOUR MILL AND ELEVATORS AT GREELEY.



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ORAIBI SQUAW GRINDING CORN (INDIAN MEAL).

# INDUSTRIAL HISTORY

IN

## SECONDARY SCHOOLS

Its justification, its  
values, a course of  
study, and methods

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By  
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Principal High School  
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# Industrial History in Secondary Schools

ITS JUSTIFICATION; ITS VALUES; A COURSE OF STUDY;  
AND METHODS

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The study of history is now so generally accepted as an essential in any well organized curriculum, and its intrinsic worth is so well established that no defense of so popular a subject is needed in this discussion. It is probably safe to assume that school people are reasonably agreed upon the following values to be derived from the proper study of history: First, it develops judgment in matters of practical concern by the study of cause and effect as shown in human activities. Second, it affords excellent training in the organization of material in an orderly way, thus giving the pupil command of all his mental resources. Third, it develops scientific habits of thought so far as this may be done by the search for material, the weighing of evidence, the suspension of judgment in cases of doubt, and the general candor and honesty that should attend all historical study. Fourth, it trains the imagination by calling upon it to reconstruct the large setting of world history, and to picture the world's most important events.

Granting these values of historical study, or any other values sufficient to guarantee the subject a place

in the curriculum, the question arises as to the proper selection of historical material. The subject of history has long since felt the tendency of the times toward a more practical application of school work to the affairs of life. All through the course of study subjects are examined with a view to relating them more closely to the experience of the students. All along the line the watchword is vitalize, humanize, make these dry bones live. In English and foreign languages, in mathematics, in geography, as in biology, the emphasis is now upon function rather than upon form. The question concerning a word or a river, as concerning a bug, is, not how is it made, but what does it do? Applied to history, the question is changed only in tense. Given a certain historical fact, we ask, what did it do? What reaction occurred? How did this circumstance affect the lives and the institutions of succeeding generations?

Naturally the historians themselves are the leaders in this modern movement for a different selection of historical material, and are writing now histories of people rather than chronicles of kings and governments. John Richard Green was one of the pioneers of this movement with his "History of the English People"; and since his day few historians have failed to profit by his example in giving a fundamentally social treatment of the subject. In our own country MacMaster's splendid work is called "A History of the People of the United States," and the recent five volume

history by Woodrow Wilson is known as "A History of the American People." In all these cases the text justifies the title, being, indeed, a consideration of the life of the people, and of their thoughts and feelings as these have found expression in their various institutions. Not only is this view of history indicated indirectly in the work of these modern writers, but many of them state definitely their devotion to this new conception of historical treatment, and consequently of historical study. For example, on the first page of McMaster's five volume work mentioned above, he states his position as follows:

"It shall be my purpose to describe the dress, the occupations, the amusements, the literary canons of the times; to note the changes of manners and morals; to trace the growth of that humane spirit which abolished punishment for debt, which reformed the discipline of prisons and of jails, and which has, in our own time, destroyed slavery and lessened the miseries of dumb brutes. Nor shall it be less my aim to recount the manifold improvements which, in a thousand ways, have multiplied the conveniences of life and ministered to the happiness of our race; to describe the rise and progress of that long series of mechanical inventions and discoveries which is now the admiration of the world, and our just pride and boast; to tell how, under the benign influence of liberty and peace, there sprang up, in the course of a single century, a prosperity unparalleled in the annals of human affairs; how, from a state

of great poverty and feebleness our country grew rapidly to one of opulence and power; how her agriculture and her manufactures flourished together; how, by a wise system of free education and a free press, knowledge was disseminated, and the arts and sciences advanced; how the ingenuity of her people became fruitful of wonders far more astonishing than any of which the alchemists had ever dreamed."

Prof. Charles M. Andrews, in the preface to his "History of England," states the general situation forcibly and clearly in the following words:

"History today is not expected to allure the student by tales of conflict, glitter of courts, gossip of diplomats, and adventures of heroes. It has got rid of much of the stage thunder that passed current for history in older narratives, and shows that the true progress of a nation is not to be found in the glamour of a Hundred Year's War, the sham of a Field of the Cloth of Gold, or the rivalries of court favorites and corrupt party leaders. It points to the industry that underlies wealth, and to the wealth that makes military success possible. It lays stress upon the national or social conditions that render the great statute or legislative act necessary, and upon the pressure of food or population and the spurring of religious conviction that urge men to brave the sea and undertake colonization. It calls attention to the deep significance of peasants' rebellions, religious revivals, and industrial revolutions in preparing the way for the rise of democracy and the

transformation of the social life of a nation. It proves that the private extravagances of kings and the corruption of men in office are not typical of the moral standards of an age; and it encourages confidence in the sobriety and sanity of those who make up the mass of a nation."

This same tendency toward a closer union of school interests with life interests finds expression in the remarkable movement toward industrial work in the schools of today. It seems generally conceded that throughout the grades of the elementary school the child should be given some manual or constructive work to do. By means of such occupation the child gains some idea of the problems that confront real industry, and attains a certain empirical knowledge of the technique of some trades, but he is not in a position to take a comprehensive view of the industrial development of a country while still in the elementary school.

On the basis of these facts, and in view of the tendency mentioned, I wish to propose that a place should be found, or made, in the high school curriculum for a special study of industrial and economic history.

The values claimed particularly for this phase of historical study are as follows:

1. It affords an opportunity for correlating and unifying other school work.
2. It enlists the interest of the family at home.
3. It establishes a more appreciative and sympathetic understanding of our complex modern life.

4. It leads to a more intelligent choice of a life work.

5. It prepares a pupil for a more intelligent and effective participation in the duties of citizenship.

Let us examine these claims somewhat in detail.

### I.

The first claim made for the study of industrial history is that it affords opportunity for correlating and unifying other school work. I am aware that nearly all the standard subjects have had their enthusiastic supporters who have claimed for each subject the right to constitute an "educational core." I recognize that correlation is an overworked hobby that has borne many a zealous rider to educational oblivion. The "core" idea is unfortunate in its suggestion that any subject is important enough to warrant us in tacking to it all available information. The correlation theory has met the difficulty that subjects which are not closely related to the interest of the child do not become appreciably more interesting or profitable by relating them to each other. If, however, the life and experience of the child is made the educational center, subjects grouped around this center will be effectively correlated.

Industrial history, studied in a concrete way, does relate closely to most of the legitimate interests of the school and of the home. Physics, chemistry, electrical engineering, mechanics, all applied sciences, have

formed the very basis of our remarkable industrial life. Any consideration of the source of raw material takes us at once into the fields of botany, zoology, geography, or meteorology. Reading, and that of the best sort, is stimulated by the perusal of the wonderful story of our material progress, and its effect upon our standard of living. Composition, both oral and written, is called for under circumstances most favorable to good work, that is, under the pressure of a real need for expressing clearly and forcibly to others something of real value to all. Mathematics in its simpler forms, and mathematical reasoning in its higher forms, find ample opportunity for exercise in this subject. Averages, percentages, and drawing to scale are the means by which most of the comparisons are made in this study, and problems for solution arise at every step. There used to be a popular, hoary-headed problem concerning three men who owned a grindstone in partnership, and it was proposed to find out how long each man should turn it to get his money's worth, or something of that sort. A modern problem is, if three men unite to produce a suit of clothes, one furnishing the raw material, one furnishing the capital, and one furnishing the labor, how shall the selling price be determined and how divided. The latter problem is harder, I will confess, but it concerns pupils more closely than does the hypothetical grindstone. Even the fine arts are closely related to industrial development by the wonderful instruments which mechanical skill has put at the dis-

posal of artists. Purely mechanical results and machine products themselves are often genuine works of art. Carving and sculpturing machines, pottery modeling machines, photography, and various reproduction processes, even the despised and calumniated mechanical piano-player, all these have come to be recognized factors in the field of fine art. These form a connecting interest between pure art and mechanical industry.

## II.

Our second claim is that a study of industrial history enlists the interest of the home. Busy fathers and tired mothers are not likely to take a lively interest in Latin verb forms, or in any silly problem about filling a cistern with two pipes while some one else tries to empty it with three pipes. If, however, the high school boy considers the conditions under which the family purse is filled or emptied; if he investigates causes affecting prices of current commodities—the economic conditions under which his father's work is done, or the source of supply of the conveniences and necessities for a comfortable living,—he will receive assistance and sympathetic interest from all members of the home. Too great a chasm exists between the interests of children whose attention is fixed upon book lore, and parents who are fully occupied in providing opportunities for their children which they themselves did not enjoy. Children are inclined selfishly to exact



tribute from parents whose sacrifice they little understand. Parents are inclined to belittle their own employment, and to teach their children to despise the occupation which supplies their food and clothing. All this is unfortunate. Children should attempt to understand the problems that absorb their parents' energies, while the home and the school should unite in an effort to inculcate in the minds of the young a genuine respect for the dignity of labor and an admiration for the skill of the workman. The study of industrial history offers opportunity for the pursuit of these desirable aims.

### III.

In making the third claim for industrial history, that it establishes a more appreciative and sympathetic understanding of complex modern life, I wish to emphasize, not so much the higher spiritual significance of this expression, as the simple, common-sense understanding of our relations with those concerned with us in supplying the ordinary comforts and conveniences of life. For example, it is not uncommon for women to censure a street car conductor for not allowing them time to get off the car comfortably, while the male passengers storm at the unpardonable delay, neither sex apparently realizing that the conductor is a part of a great system. It is possible for a society woman to telephone in an order for goods that must be delivered immediately; then, when the goods are delivered, to

call up an officer of the S. P. C. A. and report inhuman treatment of the horse that delivered the goods. Such inconsistencies are perpetrated constantly because of ignorance of the system which controls ordinary business operations. Most of the petty vexations of life by which we lose our equanimity and make ourselves ridiculous arise from our own ignorance of business conditions. The tailor and dressmaker, the butcher and baker, even the plumber and wrath-provoking railroad man, all have their justifications in the order of society—all have some excuse in the conditions under which they work. It is reasonableness in these ordinary affairs of life that I wish to emphasize, and that will be promoted by a study of commercial and industrial life.

Appreciation of the skill, the knowledge, and the worth of our fellow-workers comes with observation and understanding. In mediæval times the possessor of useless knowledge was distinguished from the possessor of useful knowledge by the garb he wore. The cloak of the scholar and the frock of the artisan emphasized the class distinction that existed. In these days it is more proper that the seeker for knowledge should mingle with those who have laboriously acquired working knowledge and skill, that he may be inspired and instructed by such association. Excursions to local industrial institutions do impress pupils profoundly with the skill and capacity of the workers and managers observed. The average high school

student is duly humbled and effectively inspired by a personal observation of the intricacies of modern industrialism. The possession of plain, every-day knowledge most tends toward ideal socialization.

#### IV.

The fourth claim is that a study of industrial history leads to a more intelligent choice of a life work. It is a well recognized fact that the majority of people drift into their life work rather than choose it with deliberate attention. Many of us could say of our work, as did Mr. Bryan of his political career, that "he got in by accident and stayed in by design." Yet, how we live depends very largely upon how we make our living. Our social and moral standards are determined largely by the circumstances of our daily occupation. If the problem of how to live is the greatest of all moral questions, why should the youth be left so poorly prepared to choose the manner of making a living?

Now industrial history is primarily a study of how people have made, and are making, a living. It is a study of social evolution, of the forces that have operated to produce the complex civilization in which we must participate. Our economic life follows very closely the biological laws of the struggle for existence and survival of the fittest. From the prehistoric struggle of tribe with tribe we have the modern international struggle for supremacy and expansion. From the early struggles among social classes of priests, soldiers, and

slaves, we have a modern conflict between capital, labor, and the great middle class of long-suffering humanity, called vaguely, "the consumer." Lastly, we have the old struggle within each class for individual supremacy, beginning when the first man born into the world killed the second one, and continuing in modern times under the polite title of business competition. It is in the industrial field, under a competitive system, that the young man of today must make his first attempt to apply the general knowledge and power that he is supposed to have acquired in the secondary school. The multiplicity of technical schools springing up all over the country indicate a recognition of the demand for specially trained men, but are the secondary schools preparing their pupils to choose wisely the technical training they will most profit by? I would not intimate that the secondary school should plan its work at the dictation of the technical school, as it has so long done at the dictation of the college, but I would urge that, as the technical schools are fitting for special lines of work, so the high school should do more toward enabling the student to choose deliberately the work which he will undertake.

For such a choice at least two factors are essential: the student must know himself, and he must know the demands of his proposed occupation. The first of these factors is being supplied by the enriched curriculum with its broad range of electives, including art and industrial work. In this curriculum the student

developes his tastes and discovers his latent powers. By the elective system he is compelled to study his own mental tendencies, and is enabled to enjoy the satisfaction that results from application to congenial employment. Thus by the enriched curriculum and the elective system, the student is enabled to know himself. The second essential, a knowledge of the demands of the proposed occupation, may be found in a study of industrial history, and, to some extent, in commercial geography, political economy, and sociology. These studies will familiarize the student with the demands made by modern business life, and will indicate in a general way the advantages and disadvantages of large classes of occupations. By a study of industrial history the student will come to recognize large economic groups, such as extractors, transformers, transporters, transferrers and dependents. He will observe and compare the attractions of independence, wealth, fame, social position, educational opportunity, and the like offered in these various fields of activity, and, consciously or unconsciously, he will estimate his own fitness for the several lines of work which he observes.

## V.

The fifth claim is that a study of industrial history prepares for a more intelligent and effective participation in the duties of citizenship. If this claim can be substantiated, it alone will win universal recognition for the subject under discussion. Our search for a

study that will promote good citizenship has led us back and forth across the field of civil government, round and round the field of United States history, with frequent excursions into the promised lands of student self-government, patriotic orations, and rythmical flag-waving and saluting. Without disparagement of these well-meant and innocuous efforts, I suggest that their results have been disappointing. These things do not seem to lie near to the springs of human action; they are not of the nature of human motives; they deal with externals rather than with fundamentals; they consider existing forms rather than underlying motives. The study of civil government is a study of the institution that has been devised by man to protect himself in the enjoyment of his inalienable rights. Under modern circumstances the dangers threatening these rights originate almost wholly in industrial conditions. The rights of "life, liberty, and the pursuit of happiness" comprehend the rights of getting a living, freedom of contract, and the maintenance of a standard of living that provides for the satisfaction of reasonable physical needs. The political problems of today are not largely problems of theory and doctrine to be settled by abstract discussions; rather are they problems of industrial policy, demanding observation of industrial phenomena. Regulation of tariff, of currency, of commerce, of taxes, of corporations; preservation of individual rights against corporate greed in municipalities; relief for the congested

manufacturing centers, and extension of municipal advantages to rural populations; such are the questions the citizen of today is called upon to solve.

Furthermore, these problems have a history; they have been met in various ways by other people in other days, and we may profit by their experience. The student of today and the citizen of tomorrow must come to see our modern complex life as a gradual evolution from a simpler and more primitive condition. He must recognize that we have surrendered much individual freedom in the attainment of great social advantage. He must know that social and industrial systems are changed by evolution, not by revolution; that economic laws, more effective and comprehensive than the laws of the statute books, affect his material welfare; that social participation is forced upon him whether he is willing or unwilling; and that a degree of material prosperity is a necessary condition for the attainment of the highest ethical and spiritual good. Knowing and feeling these things as a positive reality, the citizen of tomorrow will contribute his share to the mass of public sentiment which, crystallized in the form of legislation, both local and national, will gradually remedy our economic evils as public sentiment so expressed has gradually ameliorated industrial conditions through the past two centuries. Such knowledge will, I believe, contribute directly to good citizenship.

In summarizing the arguments advanced for the

study of industrial history, it will be seen that they all group around the central thought of a study of existing activity. The work proposed is dynamic rather than static. Society in the process of making is the point of departure and the final goal of all the suggested investigations. Records of past achievement are useful means for the interpretation of the present; they are not intrinsically a worthy end. Industrial history is, in short, an effort toward an examination of the past, an understanding of the present, and a preparation for a useful and successful future.



THE  
COURSE OF STUDY  
IN  
INDUSTRIAL HISTORY

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*PART I. Introduction and General Survey.*

CHAPTER I.—INTRODUCTION.

- 1.—*Definition of Subject.* Scope of subject. Limits of time, space, and subject. Selection of industrial factors.
- 2.—*Values of Subject.* Relation to life work. Relation to good citizenship; to other subjects, as Economics, Sociology, etc.; to pleasures and satisfaction in life.
- 3.—*Sources of Information.* Observations; conferences with people; books; periodicals.

CHAPTER II.—GENERAL SURVEY.

- 1.—*Evolution of Industry.* Hunting and fishing stage. Pastoral stage. Agricultural stage. Handicraft stage. Industrial stage. (This should be illustrated by a study of the evolution of a typical industry, as the textile arts.)
- 2.—*Classification of Occupations.* Extractors; Transformers; Transporters; Transferrers;

Servants; Dependants. (Study fully the history of our own town or community, noting the gradual differentiation of occupations, and increase of socialization.) Classify as an agricultural, manufacturing, or commercial community.

- 3.—*Relative Advantages of Occupations.* Tenure of position; chance for promotion; degree of independence; effect on health; moral effect; responsibility and anxiety; financial risk; holidays and vacations; amount of wages and manner of payment.

## *PART II. History of Typical Industries.*

### CHAPTER III.—EXTRACTIVE INDUSTRIES.

- 1.—*Agriculture.* The manorial system in England. Land enclosures, the causes and results. Agricultural bounties and corn laws. Improved methods of agriculture in England. Agriculture in the American Colonies. Acquisition and disposition of United States government lands. Agriculture in the North and South prior to the Civil war. Opening of the agricultural West. Irrigation, its methods and results. Government projects. Modern methods of specialized intensive farming. Extensive capitalistic farming.

Comparative study of value of farm products by states, by decades, and by localities.

- 2.—*Fishing*. Early New England fisheries; extent and economic importance. Whale fishing. Government interest in fish protection and culture. Modern methods of fishing. The salmon fisheries of the northwest.
- 3.—*Mining*. Early iron works in England; use of coal in smelting. Development of iron works in the colonies; opening of the coal fields. Early gold and silver mining in the West. Modern methods and processes. Value and importance of various minerals. (A statistical comparison expressed graphically.)

#### CHAPTER IV.—TRANSFORMING INDUSTRIES.

- 1.—*General Periods of Development*. The domestic period in England. The gild period in England. The factory system in England. The domestic system in America. The factory system in America.
- 2.—*Types of Organized Manufacturing*. (Study first the manufactures of your own community, especially preparation of the necessities of life.) Flour milling. The boot and shoe industry. Clothing manufacture. Meat packing. Sugar manufacture. Lumber industry. Iron and steel industry.

## CHAPTER V.—MECHANICAL INVENTIONS.

- 1.—*Printing*. Early printing in England. Printing in the colonies. Modern methods and machinery. Magazine illustration. Advertising. Organized literary work of periodicals.
- 2.—*Telegraph and Telephone*. Invention and introduction. Effect on business methods. Modern improvements.

## CHAPTER VI.—TRANSFERRING INDUSTRIES.

- 1.—*Retail Trade*. Early systems of barter. Fairs. General stores, special stores, and the modern department store. (An example of highly organized industry.) Mail order business.

## CHAPTER VII.—TRANSPORTATION.

- 1.—*Natural Waterways*. Shipbuilding in the American colonies. Commerce on the Great Lakes; its growth and present importance. River navigation; its history and present methods. Modern ocean transportation.
- 2.—*Canals*. Early canals in England. Early canals in the United States. Recent canals of great commercial importance. The Panama canal.
- 3.—*Railways*. Early railways in England. Beginnings of railroading in the United States.

Railway building after the Civil war. Present railway systems as to organization, management, service rendered, rates, effect on industrial development of the country. Recent railway inventions.

4.—*Other Transportation Systems.* Elevated roads. Electric lines. Sub-ways, etc.

5.—*Public Highways.* State and national roads. The modern good-roads movement,

## CHAPTER VIII. COMMERCIAL INSTITUTIONS.

1.—*Banks.* Italian banks and goldsmiths. Banks of Amsterdam and England. Origin and growth of American banking system. Modern banking methods. Clearing houses.

2.—*Currency.* Historical sketch of English currency. Development of currency in colonial times. Growth of currency standards.

3.—*Stock Exchanges.* Origin and growth of the business. Effect on markets. Ethical considerations.

## *PART III. Industrial Problems.*

## CHAPTER IX.—INDUSTRIAL ORGANIZATION.

1.—*Reasons for Organization.* Need of larger capital. Economy of production. Control of markets.

- 2.—*Forms of Organization.* Partnership. Joint stock company. Corporation. Trust. Growth from free competition to concentration, and to integration.

## CHAPTER X.—THE LABOR MOVEMENT.

- 1.—*Labor Organizations.* First labor unions in England. Growth of unionism in America. Classes of organizations and statement of principles. (Study local organizations.)
- 2.—*Means and Methods Used.* Definition of strikes, boycotts, and lock-outs. History of early strikes in England and America. Recent strikes of historical importance. (Study causes and results.) Theory of the boycott and its ethical aspects. Lock-outs.
- 3.—*Labor Legislation.* The demands of labor. Sketch of English labor legislation. Gains of labor by legislation in America. The present outlook.

## CHAPTER XI.—REMEDIES PROPOSED FOR LABOR DIFFICULTIES.

- 1.—*Arbitration and Conciliation.* Recent examples of arbitration and conciliation. Practical and theoretical difficulties.
- 2.—*Profit Sharing and Co-operation.* Co-operation in England. Important examples of co-opera-

tion in America. Recent experiments in profit sharing.

- 3.—*Socialism*. Different theories of socialism. Examples of socialistic communities.

## CHAPTER XII.—SOCIALIZATION OF PUBLIC UTILITIES.

1. *Municipal Ownership*. Examples of municipal ownership at home and abroad. Estimate of results. Present tendencies.
2. *Government Ownership*. Experience of foreign countries. Comparison with American conditions. Present tendencies.
3. *Government Control*. Inter-state commercial laws, etc. The work of government commissioners. Present tendencies and prospects for the future.

## CHAPTER XIII. SUMMARY.

A social and economic interpretation of history.  
Some principles of industrial evolution.

Each division of the subject has its special bibliography, both in books and periodicals, but a list of some of the books of a general nature that have been found useful is given below as a suggestion of the kind of material that may be found.

Evolution of Industrial Society ---- Richard T. Ely.

The Place of Industrial in Elementary Education

---- Katherine Dopp.

Economics and Industrial History----Henry W. Thurston.

Industrial Evolution of the United States----Carroll D. Wright.

Industrial History of the United States----A. S. Bolles.

Modern Industrialism----Frank L. McVey.

American Industrial Problems----W. B. Lawson.

Industrial Evolution----Bucher.

Economic and Social History of New England  
----W. B. Weedon.

Economic History of Virginia----P. A. Bruce.

Modern Industrial Progress----Charles H. Cochran.

Six Centuries of Work and Wages----J. E. Rogers.

Men of Invention and Industry----Samuel Smiles.

Captains of Industry----James Parton.

History of American Manufactures----Bishop.

The Origin of Inventions----O. T. Mason.

Progress of Invention in the Nineteenth Century  
----E. W. Byrne.

Our Wonderful Progress----Trumbull White.

The World's Book of Knowledge (a compilation).

Organized Labor----John Mitchell.

Economic Interpretation of History----Edwin Seligman.

Economic Interpretation of History----J. E. Rogers.

Industrial and Commercial Geography----J. U. Barnard.



- Industrial and Commercial History of England  
----J. E. T. Rogers.  
Social England, 6 vol.----H. D. Traill.  
Industry in England----H. DeB. Gibbins.  
English Commerce and Industry----L. L. Price.  
Industrial and Social History of England----Edward P. Cheyney.  
English Economic History----W. J. Ashley.  
Outlines of English Industrial History----Cunningham and McArthur.  
A Short History of the English Colonies in America----Henry C. Lodge.  
The United States of America----N. S. Shaler, 2 vol.  
Reports Issued by Departments of State Government.  
United States Government Reports, Census, Labor Bulletins, etc.  
The Evolution of Modern Capitalism----John A. Hobson.  
General History of Commerce----William C. Webster.  
Introduction to the Study of Economics----C. J. Bullock.  
Business Geography----Mead.  
The Labor Movement in America----Richard T. Ely.  
Speculation on Stock and Produce Exchanges of the United States----Emery.

- Rural Wealth and Welfare----Fairchild.  
Monopolies and Trusts----Ely.  
History, Principles and Practice of Banking----  
Gilbart.  
Strikes and Social Problems----Nicholson.  
The Railway Question----James.  
American Railway Transportation----E. R.  
Johnson.  
The Control of Trusts----J. B. Clark.  
Co-operation in New England----Bemis.  
Three Phases of Co-operation in the West----  
Warner,  
Gain-Sharing----Towne.  
Irrigation Institutions----Mead.

This list may be extended indefinitely from any good book catalogue, but these titles are sufficient to show what kind of books are used freely in this study.

About the only book on industrial history published at present as a text for high schools is Henry W. Thurston's "Economics and Industrial History." It is a very suggestive book, emphasizing the economic side of the subject.

## Suggested Methods in Industrial History

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The methods suggested for the study of industrial history are not peculiar to this subject alone, but are the generally recognized modern methods, combining the use of library, laboratory, and field work, as in nature study. I shall refer to three principles, or directions for work, which, I believe, should be observed in the study of industrial history.

1. Study local material so far as possible, in order to arouse interest in the subject, and to illustrate concretely the larger phases of the subject.

2. Combine first hand information with evidence taken from books, in order to confirm, illustrate, and emphasize each class of information by the other.

3. So far as possible, choose problems of immediate and personal interest for study, rather than distant abstractions, though the latter may appear larger and more important.

A few illustrations of these principles, taken from work recently done, may make them more definite.

### I.

In the study of local material the following plans are among those that have been tried with reasonable success:

*DIRECTIONS FOR A STUDY OF  
LOCAL HISTORY.*

Talk with as many as possible of the pioneers of your own town, read what is written of its history, then write a paper covering somewhat the following points:

When was your town first settled? What led to its settlement? By what class of people, and from what place did they come? What were the early industries of the town? What changes have taken place in its industries up to the present time? What prominent forces or causes have made the town what it is? What important men have been connected with its history? What have they done? What is the prospect for future development of the town? Why?

The papers of a class that recently took this exercise were extremely interesting. Pupils who live in Greeley studied the organization of Union Colony and the founding of the present town, the efforts of its pioneers in establishing their institutions in a new land, the hardships that were endured, and the work of prominent pioneers, including the part that Horace Greeley played, and the tragic history of Nathan Meeker. Other pupils who wrote of Denver, Colorado Springs, Central City, Cripple Creek, Leadville, Rico, Colorado City, and many other places, had no less interesting material.

A part of another exercise was as follows:

*MANUFACTURING INTERESTS. (Study some special plant in your town.)*

What is the value of the plant? Does it pay taxes? Is it owned by local capital? Is it detrimental in any way? Is it permanent or temporary? Does it affect the value of farm land? Of town property? Of rent? Does it supply local conveniences or cheapen the necessities of life? What is the value of the annual output? What proportion of this money is spent locally? How many and what class of persons are employed? What is their nationality? What is their standard of living? How favorably is this plant generally regarded by the community? Summarize the advantages and disadvantages of having this plant in the neighborhood.

(In connection with the labor movement a similar series of questions directed a study of labor conditions in the establishment.)

## II.

As an illustration of how conveniently observation and reading may be combined in the study of industrial history, reference may be made to the way in which the subject of "Banks and Banking" was recently studied by a class in the Normal High School.

The following reading list was assigned and made the basis of class discussion:

Money and Banking; Horace White.

Banking Systems of the World; W. M. Handy.

The Modern Bank; A. K. Fiske.

Evolution of Modern Banking; Political Science Quarterly, 14:569.

Methods of Banking; Cosmopolitan, 22:475.

Working of a Bank; Scribner's, 21:575.

Bank of England; Chautauquan, 23:606.

Bank of England; Harper's, 68:885.

National Banks; Nation, 45:273.

Making of a Bank Cashier; Everybody's, 9:536.

Government Control of Banks and Trust Companies; American Academician, 24:17.

Reform in Banks; Nation, 63:416.

Branch Banking; Journal of Economics, 17:476.

State Banks and Banking Laws, Nation, 74:481.

Concentration of Banking Interests in the United States; Atlantic Monthly, 92:182.

Manufacture of Bank Notes; Harper's, 24:306.

Bank Tax; Nation, 72:83.

Proposed Banking Among the Poor; Academy Political Science, 18:286.

Elasticity and Sound Banking; North American, 178:388.

After two recitation periods spent in considering the general subject of banks and banking, an excursion was taken to one of the banks of the city. According to arrangements previously made, the cashier of the bank met the class and teacher in the bank parlors and gave a clear-cut, business-like explanation of the points covered by the following outline:

*BANKS.*

1. Organization and capitalization.
2. Charter—how secured.
3. National, state, and private banks distinguished.
4. Officers, their duties and responsibilities.
5. Kinds of business done and sources of profit.
6. Provisions for safety and sound business.
7. Bank paper; checks, drafts, exchange, etc.
8. Issue of currency.

After this lecture and the answering of all questions asked by pupils, the class was conducted behind the counters, where full explanations and demonstrations were given of the working apparatus of a bank; books, trays, stamps, perforators, adding machines, vault, safe, time-lock, burglar alarm, etc.

At subsequent recitations the work of the excursion was reviewed, and the subject was then summarized by a paper from each member of the class, prepared according to the instructions of the English teacher, and submitted to the English teacher for correction as a regular exercise in that class.

It is believed that this is a feasible way of studying most local industries. The class referred to above has studied the working of a sugar factory, a flour mill, an ice plant, a gas plant, and a printing office in much the same way.

The chief difficulty in this sort of study is found in the lack of magazine literature in many schools.

This disadvantage may be partly overcome by the purchase of a few well selected books on the subjects, by the use of all magazines in the homes of the pupils, and by a persistent effort to secure magazines for the school which have been shown to be valuable.

### III.

As an illustration of one way in which problems of immediate interest may be studied, and interest aroused in the home, a study of agriculture is submitted. Greeley is the center of an agricultural section, the principal products of which are potatoes, sugar beets, and wheat. This year the original contracts which the farmers had made with the sugar company expired, and the farmers were carefully considering the advisability of renewing or extending these contracts. This necessitated on their part a careful estimate of the relative profits from their three principal crops. By organized effort their own children were able to collect information which was of real value in the solution of an economic problem. The following report of this study is self explanatory. The subject matter was collected by the pupils and presented to the class by them. The teacher is responsible only for the arrangement in form.



## A Brief Study of Intensive Farming in the Poudre Valley.

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The fertile river valleys of Weld county afford an excellent example of the rapid development of an agricultural section from extensive and wasteful ranching to intensive scientific farming. Thirty years ago the plains and valleys of Weld county were occupied by droves of half-wild cattle herded on the unfenced plains. A single decade saw vast areas of this land fenced, irrigated, and brought under cultivation. The decade just past has seen the tendency toward intensive cultivation of small farms most rapidly increased. The modern farmer is not the last to appreciate the necessity for close calculation, scientific methods, and careful organization of industry. The simple plan of reducing expenses to a minimum, pushing the line of greatest profit, and utilizing capital by its constant employment is as applicable on the farm as in the department store or in the factory.

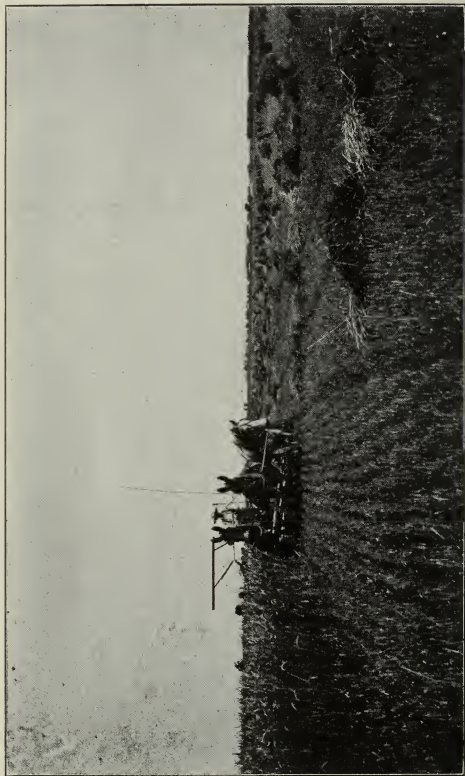
In order to compare the advantages of raising various crops in the vicinity of Greeley, and of comparing agriculture in general with other lines of work, this study was undertaken by the senior class of the Normal High School in connection with their study of industrial history.

After a preliminary discussion of the conditions so far as known by the students, and a consideration of

the facts that might be useful in class work, a question blank was made out and distributed to many prominent farmers of this vicinity by means of the mail and by personal visits by students. The latter method, it is needless to say, was vastly more profitable. The questions covered the three principal crops of this neighborhood—wheat, sugar beets, and potatoes. Farmers were asked for their personal estimate of the cost of producing these crops, and of the gross yield from each of them, basing their figures on the average for the past three years.

If a longer period of time had been considered a fairer average would have been shown, but this advantage would have been overbalanced by the difficulty farmers would have had in recollecting figures for more than three years in the absence of any written record of their yields and prices. Furthermore, three years covers the practical experience in beet raising in this section of country. Again, it was desired that this data should represent present conditions rather than conditions that are now changed by recent fluctuations in values of land or by modern methods of cultivation. Thirty-five farmers replied to the questions, but of these reports a few were hardly complete, or the questions were somewhat misunderstood. About twenty-eight papers were serviceable in compiling tables for averages. These tables were made and the averages compiled by students of the class previously mentioned, and a discussion and analysis of the results were given by them. The table illustrative of wheat culture is as follows:





HARVESTING WHEAT NEAR GREELEY.

Wheat	Cost of seed per acre.....	Planting and cultivating....	Harvesting and marketing.....	Yield in bu.....	Price per bu....	Total cost per acre.....	Total receipts per acre.....	Apparent profit per acre.....
Name of farmer re- porting								
G. W. S.	\$1.57	\$2.70	\$3.80	30	\$.63	\$ 8.07	\$18.90	\$10.83
W. F. W.	.60	.75	2.30	40	.75	3.65	30.00	26.35
C. B. N..	1.00	2.25	3.80	30	.72	7.05	21.60	14.55
T. E. R...	.80	1.40	3.56	52	.72	5.76	37.44	31.68
C. J. F...	1.00	2.50	1.00	20	.70	4.50	14.00	9.50
A. N. L...	1.15	2.00	4.50	45	.60	7.65	27.00	19.35
E. M. C..	1.15	2.25	6.00	40	.63	9.40	25.20	15.80
F. R....	1.00	1.50	2.80	40	.60	5.30	24.00	18.70
J. T. ....	2.00	5.00	5.00	30	.57	12.00	17.10	5.10
J. G. H..	1.50	2.50	2.50	30	.60	6.50	18.00	11.50
E. B....	.90	2.00	4.50	35	.75	7.40	26.25	18.85
H. W. B.	1.00	.50	5.00	30	.60	6.50	18.00	11.50
Mr. A...	.90	1.75	2.50	35	.60	5.15	21.00	15.85
O. W....	.80	2.30	4.90	40	.57	8.00	22.80	14.80
H. M. M.	1.25	1.50	5.00	35	.54	7.75	18.90	11.15
J. C....	1.00	3.60	5.00	35	.60	9.60	21.00	10.40
W. W. B.	.50	1.00	6.00	55	.54	7.50	29.70	22.20
J. F. R. ..	.60	2.25	4.25	35	.66	7.10	23.10	16.00
E. W. J..	1.00	3.50	5.05	35	.60	9.55	21.00	10.45
J. L. ....	1.00	4.90	4.70	35	.65	10.60	22.75	12.15
J. W. K..	1.20	1.50	2.80	30	.72	5.50	21.60	16.10
L. F....	1.25	2.25	4.00	40	.66	7.50	26.40	18.90
Mr. B...	1.00	1.80	4.50	35	.60	7.30	21.00	13.70
Mr. M...	1.00	2.50	4.00	35	.80	7.50	28.00	20.50
W. M. L.	.80	2.25	4.00	45	.60	7.05	27.00	19.95
Mr. M...	1.00	3.00	5.00	50	.60	9.00	30.00	21.00
N. S....	1.00	1.00	5.00	40	.66	7.00	26.40	19.40
Gen. av.	1.04	2.24	4.12	37	.64	7.40	23.63	16.16

The first column, representing the cost per acre for seed, shows but slight variation, such as there is being due apparently to the varying quantities of seed sown on different soils, and to the different sources of seed, whether home grown or imported. The second column, representing cost of preparing soil, planting, labor of irrigating, and bringing the crop to maturity, shows a variation from 50 cents to \$4.90, the average being \$2.24. This variation is due probably to the varying amount of labor required for preparing and irrigating different soils. In the third column the cost of harvesting and marketing varies with the yield per acre and the distance from market.

The fourth column indicates an estimated average yield of 37 bushels per acre for the past three years. With the light crop of the present year as one of the three crops considered, this is a gratifying average. Especially is this true when it is remembered that the average yield of wheat for the United States for the past three years is but 14 bushels per acre, and that the average yield for Washington, the first state in the Union in yield, is but 24 bushels per acre. The fifth column may not correctly indicate the estimate intended by the farmers, since it was impossible in a few cases to determine whether the price given was for a bushel or for a hundred pounds. According to the evident intention of the persons reporting, the average price per bushel is 64 cents. A little further computation indicates that the average cost per acre of production for this crop is

\$7.40, the average gross receipt \$23.63, and the net receipt, or apparent profit, \$16.16 per acre.

In this connection it is interesting to compare these figures with data from other sections. According to reports made by the United States Government Industrial commission in 1901 the cost of producing an acre of wheat in Bigstone county, Minnesota, was \$5, the average yield per acre for 11 years was 10 bushels, and the average price for No. 1 Northern was 60¼ cents. Land here was worth \$20 per acre. The same report gives an average cost of production in South Dakota as \$3.77 per acre. The average price in the same state is estimated at 60 cents.

Later figures for the United States as a whole may be found in the Statistical Abstract of the United States for 1903, prepared under the direction of the Secretary of Commerce and Labor. Taking the figures for 1901, 1902, and 1903, it is found that the average yield per acre of wheat for the United States is 14.1 bushels, the average price is 65 cents and the average gross receipt per acre is \$9.16.

The next table is arranged in the same manner as the preceeding one, the estimate being on the potato crop for the past three years. The figures are as follows:

## POTATOES

Name of farmer reporting	Cost of seed.....	Planting and cultivating.....	Harvesting and marketing.....	Yield in cwt, per acre.....	Price per cwt. ....	Total cost per acre.	Total receipts per acre.....	Apparent profit per acre.....
G. W. S....	\$ 5.40	\$ 5.75	\$19.50	130	\$. .66	\$30.65	\$ 86.66	\$ 56.01
F. D.:.....	6.00	8.00	23.00	120	1.00	37.00	120.00	83.00
W. F. W....	7.50	7.75	19.50	120	.65	34.75	78.00	43.25
C. B. N....	6.00	7.50	24.00	180	.60	37.50	108.00	70.50
T. E. R....	9.27	4.55	15.53	120	1.30	29.35	156.00	126.65
C. J. F. ....	4.50	3.50	8.00	200	.50	16.00	100.00	84.00
J. W. S....	6.00	12.00	10.00	120	.75	28.00	90.00	62.00
A. N. L....	8.75	6.50	7.50	120	.70	22.75	84.00	61.25
E. M. C....	8.50	4.50	19.00	125	.65	32.00	81.25	49.25
F. R.....	8.00	3.25	45.00	180	.75	56.25	135.00	78.75
J. T.....	9.00	10.00	10.00	120	.70	29.00	84.00	55.00
E. B.....	8.00	24.00	8.00	132	.75	40.00	99.00	59.00
H. W. B....	8.00	12.00	24.00	180	.70	44.00	126.00	82.00
Mr. A.....	10.00	4.50	16.50	120	.55	31.00	66.00	25.00
O. W.....	8.20	8.55	20.00	120	.67	36.75	80.40	43.65
H. M. M....	7.00	7.50	12.00	120	.75	26.50	90.00	63.50
J. C.....	6.00	9.00	17.50	120	.70	32.50	84.00	51.50
G. A. R....	7.50	10.25	15.00	120	.75	32.75	90.00	57.25
J. F. R....	7.50	10.75	20.00	120	.75	38.25	90.00	51.75
E. W. J....	6.00	9.00	14.25	120	.70	29.25	70.40	41.15
J. L.....	7.50	8.70	16.50	120	.67	32.70	80.40	47.70
J. W. K....	5.00	4.00	6.00	85	.60	15.00	51.00	36.00
L. F.....	6.00	4.25	20.00	150	.60	30.25	90.00	59.75
Mr. B.....	6.00	4.90	16.25	150	.60	27.15	90.00	62.85
Mr. M.....	10.00	5.00	16.00	160	.70	30.00	112.00	82.00
W. M. L....	6.50	3.00	8.00	150	.60	17.50	90.00	72.50
Mr. M.....	10.00	1.50	14.00	250	.60	25.50	150.00	124.50
E. M. P....	6.36	7.00	22.50	180	.80	35.86	144.00	108.14
N. S.....	4.50	6.00	20.00	120	.70	30.50	84.00	53.50
Gen. av....	7.21	7.35	16.81	140	.70	31.34	96.90	65.22





**SUGAR BEET FIELD**



**POTATO FIELD**



As in the case of the wheat crop, the varying estimates given by the different farmers is evidence, not so much of a difference of opinion as of the variety of soils, the amount of cultivation given, the difficulty of irrigation, the distance from market, and other factors that vary with the customs of different producers. The averages seem reasonable, and are as follows: Cost of seed \$7.21, planting and cultivating \$7.35, harvesting and marketing \$16.81, making a total cost of production of \$31.34 per acre. An average yield is found to be 140 cwt., an average price 70 cents, and the average gross receipts \$96.90, these results being found by taking the average of each perpendicular column, not by multiplying the average yield by the average price.

In the case of this crop also comparisons may be made with figures from the Statistical Abstract quoted above. According to this authority the average yield per acre of potatoes in Colorado for the year 1903 was 145 bushels, or 87 cwt., this average for the state being noticeably lower than for the Poudre valley. The average price was 60 cents per bushel or \$1 a cwt. The total value of the potato crop of the state for that year was \$4,415,946. In this total money value of the crop for the year Colorado ranked tenth in the Union, the rank of the leading states being, in order, New York, Pennsylvania, Michigan, Maine, Wisconsin, Ohio, Illinois, Iowa, Minnesota, and Colorado. In yield per acre the leading states rank in this order: Maine, Utah, Montana, Wyoming, Idaho, Colorado.

The figures collected on beet culture show a rather greater variation than those for either of the other crops, and seem to indicate that this industry is still in the experimental stage. The table is as follows:

### BEETS

Name of farmer re- porting	Cost of seed per a..	Planting and cul- tivating.....	Harvesting and marketing.....	Yield in tons per acre.....	Price per ton.....	Total cost of pro- duction.....	Gross Receipts....	Net receipts, or ap- parent profits...
G. W. S....	\$ 1.50	\$18.50	\$15.00	15	\$5.00	\$35.00	\$ 75.00	\$ 40.00
C. B. N....	2.25	17.00	23.50	16	4.75	42.75	76.00	33.25
J. W. S....	2.25	9.50	16.00	18	5.00	27.75	90.00	62.25
J. T.....	2.25	8.00	14.00	13	5.00	24.25	65.00	40.75
J. G. H....	2.25	17.00	17.00	10	5.00	36.25	50.00	13.75
E. B.....	2.40	16.00	22.00	20	4.75	40.40	95.00	54.60
Mr. A.....	2.00	22.00	13.00	12	4.75	37.00	57.00	20.00
O. W. ....	2.25	17.30	25.00	20	4.70	44.55	94.00	49.45
H. M.....	2.25	17.50	15.00	18	5.00	34.75	90.00	55.25
J. C.....	2.25	18.25	27.00	20	4.66	48.50	93.20	44.70
W. W. B....	2.80	8.50	15.00	15	5.00	26.30	75.00	48.70
G. A. R....	2.25	16.50	18.00	16	4.85	36.75	77.60	40.85
J. F. R.....	2.25	19.50	22.50	17½	4.85	54.25	84.87	30.62
J. L.....	2.25	30.80	11.50	15	4.75	44.55	71.25	26.70
Mr. B.....	2.25	16.00	18.00	17	5.00	36.25	85.00	48.75
J. W. K....	2.25	15.00	15.00	10	4.50	32.25	45.00	12.75
Mr. M.....	2.25	15.00	10.00	25	5.00	27.25	125.00	97.75
W. W. L....	2.25	12.00	14.00	15	5.00	28.25	75.00	46.75
Mr. M.....	2.25	15.00	14.00	25	5.00	31.25	125.00	93.97
N. S.....	2.25	20.00	20.00	12	5.00	42.25	60.00	17.75
Gev. av. ....	2.23	16.52	17.27	16.47 100	4.88	36.53	80.45	43.92

From this table it appears that the average cost of production of beets is \$36.53 per acre. The estimate

of the Agricultural College is that the cost of production is about \$30 per acre. It seems probable that the cost of production may, in time, be reduced even below this latter figure by the invention of labor-saving machines for cultivating and harvesting, by cheaper methods of transportation, and by some economical method of planting that will reduce the amount of seed necessary to secure a stand and at the same time lessen the labor of thinning. Inventive genius is already busily at work on these problems with fair prospects of success.

The Agricultural College and other experimenters estimate the average yield per acre at 20 tons. This is considerably above the average of 16.47 tons secured thus far by the farmers reporting. The fact that a few of these men have been able to raise 20 tons per acre indicates that the yield is not impossible in this section. If further experience should enable Poudre valley farmers to raise twenty tons of beets per acre at a cost of \$30 for production, this crop would pay as well as the far-famed Greeley potatoes. In the case of wheat and potatoes there seems little prospect of either lowering the cost of production or raising the yield per acre.

Any comparison of the desirability of these various crops would be incomplete without a consideration of the greater immunity of potatoes from loss by hail than has either of the other crops. This argument alone has great weight. Measured by apparent profits as shown in the tables it seems that beets yield about 67 per cent

of the profit that potatoes give, and wheat scarcely 25 per cent.

The relative exhaustion of the soil by beets and potatoes, the possibilities of commercial fertilizers, and the best order of rotation of these crops are still largely matters of speculation and experiment.

Lest the demand for Poudre valley real estate should be unduly stimulated, it must be emphasized in conclusion, that the last column in the table represents apparent profits or net receipts. In securing these results no account has been taken of interest on money invested, of deterioration of tools and equipment, of taxes and water assessments, nor of various risks. The average value of the land returning these figures is, with water rights, in the neighborhood of \$100.00 per acre. A reasonable interest on money invested would be at least \$7.00 per acre. Taxes and water assessments would add about \$2.00 an acre to this, thus reducing the actual profits \$9.00 per acre in the case of each of the crops studied. Thus corrected, the net proceeds of wheat would be \$7.16 per acre, of beets \$34.92 per acre, and of potatoes \$56.22 per acre of actual profit. These figures must still seem fabulous to farmers of less favored regions and should be sufficient to inspire the discouraged farmer with courage for the present and hope for the future.

The exercises described above are offered, not as model lessons, but as examples of some of the ways of studying industrial history that have been tried with

reasonably satisfactory results. It is believed that this subject offers boundless opportunities for any teacher to outline work with his own class in such a way as to fit local conditions and at the same time to meet the educational needs of the pupils.

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I have proposed that there is a strongly marked tendency in educational circles toward school work that is closely related to the child's experience; that history is one of the subjects that has felt this tendency and responded to it by greater attention being given to the industrial and social side. I have suggested that this modern view of history, together with the industrial work now being so freely introduced, is resulting in great good, but that conditions are such that there are special reasons for making a connected study of industrial history in the High school. I have urged that at least five distinct values result peculiarly from such a study. I have outlined some of the material that may properly be considered in connection with this subject. Lastly, I have offered a few examples of methods that have been tried with some success.

It is hoped that what has been here suggested may encourage others to develop more fully a line of work that offers rare opportunities and great attractions to those who are willing to depart slightly from traditional paths and seek a more abundant educational life.













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